

Symbol PD8700 Series

FPE32 Configuration Guide



Symbo PD8700 Series
FPE32 Configuration Guide

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Revision History

Changes to the original manual are listed below:

Change	Date	Description
-01 Rev A	11/2006	First Release Version (Hypercom Rev. F)

Table of Contents

Revision History	iii
------------------------	-----

About This Guide

Introduction	iii
Chapter Descriptions.....	iii
Notational Conventions	iv
Related Documents.....	v
Service Information	v
Global Customer Interaction Center.....	v

Chapter 1: Requirements

Introduction	1-1
FPE32 Overview	1-1
FPE32 Requirements	1-2

Chapter 2: FPE32 Configuration

Introduction	2-1
Configuring FPE32	2-1
Communication Interfaces	2-1
RS232	2-1
10-BaseT Ethernet	2-1
USB Port	2-1
Connecting the Terminal	2-2
Accessing the Menu System	2-3
Accessing the Menu System from a Closed Screen	2-3
Accessing the Menu System on Restart	2-4
Changing the Password	2-4
Changing the Password Using the FPE-Sim Application	2-4
Changing the Password Using the FPE Interface	2-4
Main Menu	2-5
Setup Menu	2-5
Application Mode	2-6
ECR Port	2-7
Network	2-10
Contrast	2-11
External PIN Pad	2-12
HTTP Diagnostics	2-14
Screen Saver	2-15

HTMS Connection	2-16
Set Date and Time	2-17
Diagnostics Menu	2-17
Card Reader (Swipe or Contactless)	2-18
Keypad	2-18
M/S Encryption	2-19
DUKPT Encryption	2-20
Exception Log	2-21
Contactless Transparent	2-22
Contactless Firmware Version	2-23
M/S Keys	2-23
DUKPT Keys	2-24
Util Menu	2-24
Files	2-25
Setup	2-26
Hardware Configuration	2-26
Download	2-27
Calibrate	2-32
Restart	2-32

Introduction

This guide explains how to configure FPE32 (Forms Processing Engine) so that you can load and display images you created in FormBuilder onto a PD8700 series terminal.

This guide is intended for network administrators, operators, or those who configure terminals.



IMPORTANT This guide includes information about the Symbol PD8700 series terminals, Symbol OEM products from Hypercom Corporation.

Any references in this guide to Hypercom Corporation, Hypercom logo, Hypercom file names and file paths, Hypercom software and terminals reflect hardware and software manufactured by Hypercom Corporation for Symbol Technologies, Inc.

Chapter Descriptions

Topics covered in this guide are as follows:

- [Chapter 1, Requirements](#) provides an overview of FPE32 and the hardware and software requirements of the application.
- [Chapter 2, FPE32 Configuration](#) explains how to install FPE32 to load and display images created in FormBuilder onto a PD8700 or PD8705 terminal.

Notational Conventions

The following conventions are used in this document:

- Using a mouse:
 - This document assumes the use of a mouse or some other pointing device to move within and among windows and dialog boxes. When instructions include *clicking* an item, it means use the mouse to move the cursor onto the desired item. *Click* the mouse button to highlight the item or cause an action to occur.
- *Italics* are used to highlight the following:
 - Chapters and sections in this and related documents
 - Drop-down list and list box names
 - Check box and radio button names
 - Icons on a screen.
- **Bold** text is used to highlight the following:
 - Names of buttons
 - Typing in text boxes
 - Selecting from lists
 - Names of windows
 - Dialog box components.
- bullets (•) indicate:
 - Action items
 - Lists of alternatives
 - Lists of required steps that are not necessarily sequential
- Sequential lists (e.g., those that describe step-by-step procedures) appear as numbered lists.
- Special icons:



NOTE Notes contain neutral or positive information supplementing the main text. It is often information that applies only to special cases.



IMPORTANT Important statements draw attention to information crucial to using the product successfully. Pay special attention to Important statements.



CAUTION Cautions advise that a negative result, such as a loss of data, may occur.



WARNING! Warnings provide information that is essential to the safety of the user, the equipment, or both. Failure to do as instructed may result in physical damage.

Related Documents

For the latest version of this and all payment solution guides go to: <http://www.symbol.com/manuals>.

Service Information

For service information, warranty information, technical assistance or problems with the equipment, contact the regional Symbol Global Customer Interaction Center. Before calling, have the model number, serial number and several bar code symbols at hand.

Call the Global Customer Interaction Center from a phone near the scanning equipment so that the service person can try to troubleshoot the problem. If the equipment is found to be working properly and the problem is reading bar codes, the Support Center will request samples of the bar codes for analysis at our plant.

If the problem cannot be solved over the phone, it may be necessary to return the equipment for servicing. If that is necessary, the Global Customer Interaction Center will provide specific directions.

✓ **NOTE** Symbol Technologies is not responsible for any damages incurred during shipment if the approved shipping container is not used. Shipping the units improperly can possibly void the warranty. If the original shipping container was not kept, contact Symbol to have another sent.

If the Symbol product was purchased from a Symbol Business Partner, contact that Business Partner for service.

Global Customer Interaction Center

The addresses and telephone numbers below are provided for you convenience. However, this information can change due to telephone provider updates. For the most up-to-date contact number information, visit: www.symbol.com/contactsupport for a Customer Interaction Center in your area.

Country/Region	Address	Telephone
United States	Symbol Technologies, Inc. One Symbol Plaza Holtsville, New York 11742-1300	1-800-653-5350
Canada	Symbol Technologies Canada, Inc. 5180 Orbitor Drive Mississauga, Ontario, Canada L4W 5L9	1-866-416-8545 (Inside Canada) 905-629-7226 (Outside Canada)
United Kingdom	Symbol Technologies Symbol Place Winnersh Triangle, Berkshire RG41 5TP United Kingdom	0800 328 2424 (Inside UK) +44 118 945 7529 (Outside UK)
Asia/Pacific	Symbol Technologies Asia, Inc. (Singapore Branch) 230 Victoria Street #12-06/10 Bugis Junction Office Tower Singapore 188024	Tel: +65-6796-9600 Fax: +65-6337-6488

Country/Region	Address	Telephone
Australia	Symbol Technologies Pty. Ltd. 432 St. Kilda Road Melbourne, Victoria 3004	1-800-672-906 (Inside Australia) +61-3-9866-6044 (Outside Australia)
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Suomi/Finland	Oy Symbol Technologies Kaupintie 8 A 6 FIN-00440 Helsinki, Finland	9 5407 580 (Inside Finland) +358 9 5407 580 (Outside Finland)
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South Africa	<p>Symbol Technologies Africa Inc. Block B2 Rutherford Estate 1 Scott Street Waverly 2090 Johannesburg Republic of South Africa</p>	<p>11-809 5311 (Inside South Africa) +27-11-809 5311 (Outside South Africa)</p>
España/Spain	<p>Symbol Technologies S.L. Avenida de Bruselas, 22 Edificio Sauce Alcobendas, Madrid 28108 Spain</p>	<p>91 324 40 00 (Inside Spain) +34 91 324 40 00 (Outside Spain) Fax: +34.91.324.4010</p>
Sverige/Sweden	<p>"Letter" address: Symbol Technologies AB Box 1354 S-171 26 SOLNA Sweden</p> <p>Visit/shipping address: Symbol Technologies AB Solna Strandväg 78 S-171 54 SOLNA Sweden</p>	<p>Switchboard: 08 445 29 00 (domestic) Call Center: +46 8 445 29 29 (international) Support E-Mail: Sweden.Support@se.symbol.com</p>

Introduction

This chapter provides an overview of FPE32 and the hardware and software requirements of the application.

FPE32 Overview

This C++ application provides the features necessary for processing transactions in a standard and configurable product. Using custom forms as overlays to FPE32, you can have the look and feel you want and the functionality you need to deploy applications quickly without having to write a single line of code.

To utilize FPE32, you simply make calls (using the detailed FPE Interface Specification) and you get the results you requested. No payment terminal code to write means a time savings of 8 to 12 weeks (typical time to develop in C++). Sample code is available to handle returned data (such as a signature data block).

FPE32 also supports customer activation mode. This enables the terminal to gather information (such as card swipe, PIN entry, frequent shopper card, etc.) while the order is being processed. When requested by the ECR, the information is then provided.

Some of the standard functionality of FPE32 include:

- Reading and parsing track data (1,2,3 all)
- Multiple advertising support
- Signature Capture
- Multiple language
- Surveys
- Frequent Shopper programs
- Biometrics
- SmartCard

FPE32 Requirements

The following list identifies the hardware needed to install and use FPE32:

- Symbol PD8700 series terminal
- RS232 cable for connection between Host PC and terminal
- Host PC running Win32 OS with:
 - Minimum Pentium® 2 with 64 MB RAM
 - Windows 2000
- Other Host PC to terminal cables, if you are running other than the standard RS232:
 - RS232 cable
 - Ethernet cable
 - USB cable

The following list identifies the software needed to fully implement FPE32:

- FPE32 terminal software
- WinStream, FPELoader, or Hypercom Terminal Management Services (HTMS)

Introduction

This chapter explains how to install FPE32 (Forms Processing Engine) and run FPE32.

Configuring FPE32

Several steps are required to install and run FPE32. These steps must be performed in the following order:

1. Connect the terminal to the Host PC.
2. Download the initial load of the FPE32 software into the terminal using WinStream, FPELoader, or Hypercom Terminal Management Services (HTMS).
3. Configure and verify the terminal communication format.

Communication Interfaces

The communication interfaces for the terminal are:

RS232

The terminal supports one standard RS232 port that can also have power.



NOTE A specific cable must be used for communication. Refer to the Symbol support site for the appropriate cable part number and revision.

10-BaseT Ethernet

10-BaseT ethernet support has been integrated directly into the units so it does not require a peripheral card. It also incorporates a dual port mini-hub that allows the terminal to use existing 10BaseT UTP wiring.

USB Port

The terminal supports one client USB 1.1 port. A USB hub may be used to connect the terminal to multiple clients. The USB cable emulates a COM Port and will not automatically be recognized by your PC.

Connecting the Terminal

This section enables you to connect the terminal to a host PC or network hub for communication with an ECR.

To connect the terminal:

1. Connect the terminal with either RS232 cable, USB cable, or Ethernet cable.
2. If your terminal is not powered by the RS232 cable, connect the power cord plug to a grounded power outlet and insert the round end of the cord into the power connector. Twist clockwise to lock the cord to the terminal.

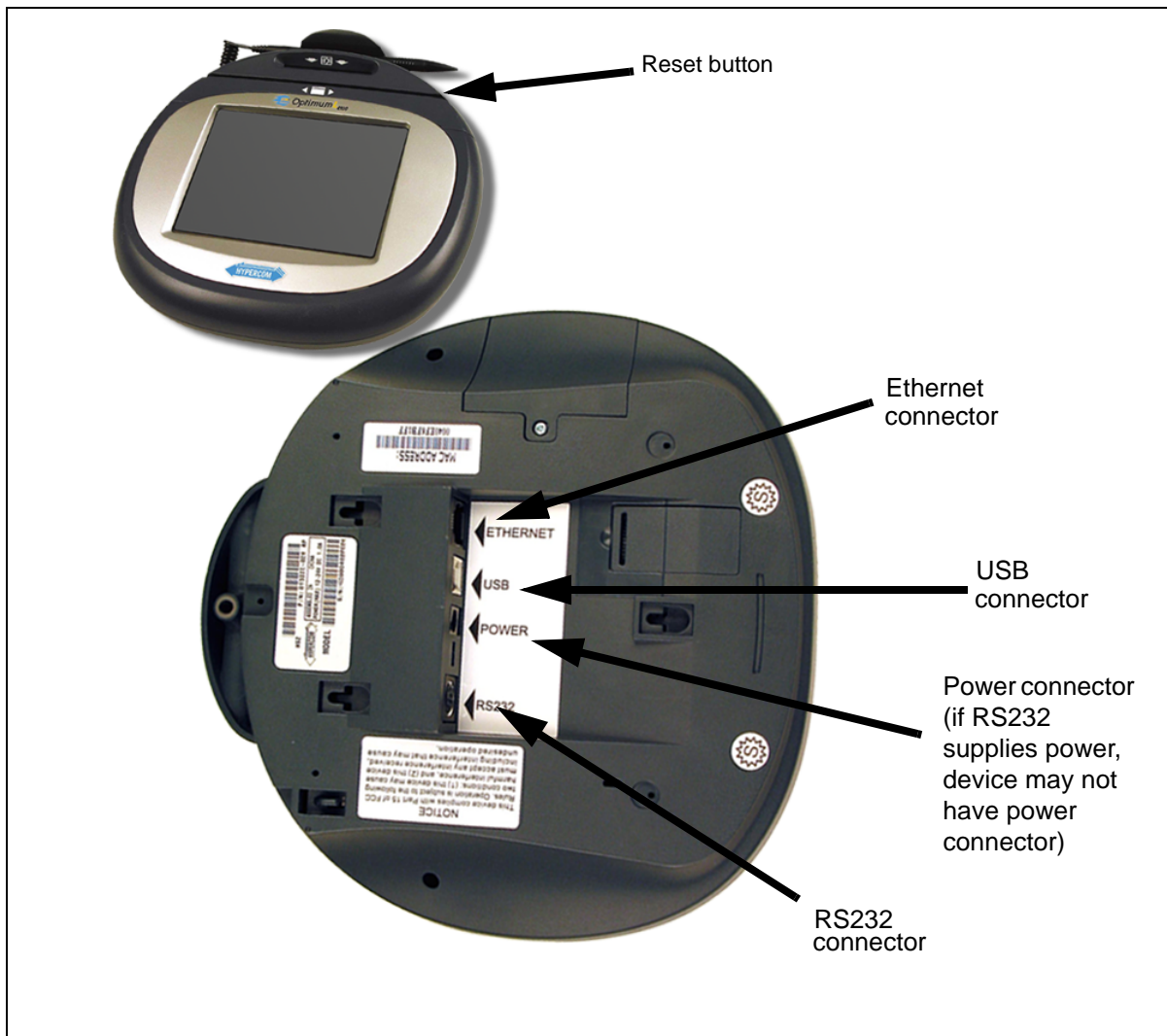


Figure 2-1 Terminal connections

Accessing the Menu System

Determine your next step:

- To access the menu system from a closed screen, continue with [Accessing the Menu System from a Closed Screen](#), below.
- To access the menu system from the terminal's first screen as the terminal restarts, continue with [Accessing the Menu System on Restart on page 2-4](#).

Accessing the Menu System from a Closed Screen

To access the menu system from a closed screen:

1. Use the stylus or your finger to tap the top corners of the screen in a Left - Right - Left pattern as displayed below.



IMPORTANT This action needs to be performed on a closed screen.



Figure 2-2 Accessing the Main Menu

The following screen is displayed:

Please enter Setup Screen password

0	1	2	3	4	5	6	7	8	9	@
Q	W	E	R	T	Y	U	I	O	P	.
A	S	D	F	G	H	J	K	L	Sh	
<-	Z	X	C	V	B	N	M	SPACE		

Exit

Clear

Enter

Figure 2-3 Entering the password

2. Using the keyboard, enter the password.
3. Select **Enter**. If the password is valid, the Main Menu is displayed. If the password is not valid, you will be prompted to re-enter the password. See your sales representative for the default password.

Accessing the Menu System on Restart



IMPORTANT The menu system can be accessed from the terminal's first screen on restart. However, if you do not press the Setup button within several seconds, the FPE32 software will display the closed screen, and then you must follow the previous step-by-step procedure to access the menu system.

To access the menu system on restart:

1. As the initial FPE screen is displayed, press the blue **Setup** button centered toward the bottom of the screen. The password screen, as shown above in [Figure 2-3](#), is displayed.
2. Using the keyboard, enter the password.
3. Select **Enter**. If the password is valid, the Main Menu is displayed. If the password is not valid, you will be prompted to re-enter the password.

Changing the Password

Determine your next step:

- On the password screen, there are two ways to change the password. Continue with either [Changing the Password Using the FPE-Sim Application](#) or [Changing the Password Using the FPE Interface](#), below.
- If FPE32 does not have an active password screen, continue with [Main Menu on page 2-5](#).

Changing the Password Using the FPE-Sim Application

The FPE-Sim application is included on the FPE32 Developer's Toolkit CD. To change the password using the FPE-Sim application:

1. Open FPE-Sim and ensure that the application is connected to the terminal.
2. From the Global tab, enter the new password in the lower right corner.
3. Select **Set Password**.
4. Select **Restart Terminal** and verify the password change after system restarts.

For more information on FPE-Sim, see the *Symbol FPE-Sim Quick Reference Guide*.

OR

Changing the Password Using the FPE Interface

To change the password using the FPE interface:

When writing the FPE interface, the 'p' command can be sent to the ECR to change the password, e.g.
`<FS>p<FS>PWtest<Data>.`



NOTE It is suggested that you change the password on the terminal.

Main Menu

The Main Menu screen is shown below in [Figure 2-4](#).

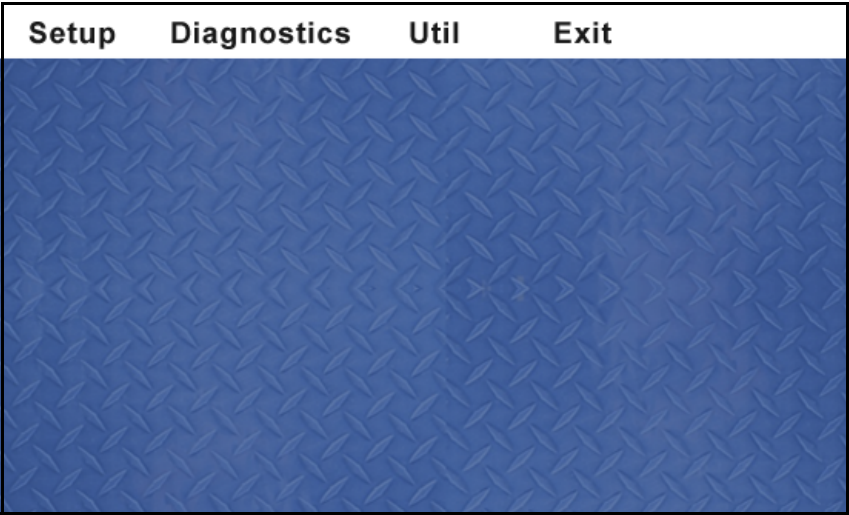


Figure 2-4 Main Menu



IMPORTANT The terminal must be restarted to apply any changes made in the configuration menu. Remember to use the Util > Restart to restart the device and pick up any changes.

Setup Menu

The setup and configuration is done from the terminal's setup options screen as shown below:

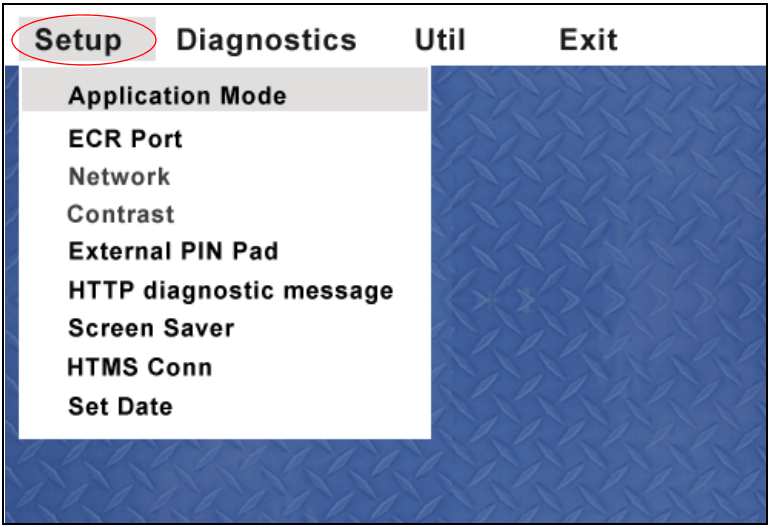


Figure 2-5 Setup options

Application Mode

PD8700 series terminals support three PIN Pad protocols: FPE, SCAT, and EFT.

FPE (Forms Processing Engine) is a protocol that includes commands to request PIN, MSR and contactless track data, signature capture, and other information including cash back amount and phone number.

The main command, FormRequest, displays a specified form on the PIN Pad and can have additional parameters that specify PIN encryption type, signature capture resolution, global prompts, etc. FPE protocol also supports so-called customer action mode. In this mode, the PIN Pad automatically displays a sequence of forms (e.g. swipe form, tender selection form, PIN form, or wait form) gathering transaction information. In this mode, ECR periodically polls the PIN Pad to monitor its status and to get the data. Symbol OPOS implementation uses FPE protocol.

SCAT is a PIN Pad protocol used to request PIN, MSR and contactless track data, signature capture, and other information like cash back amount or phone number. It has specific commands for each type of information request, e.g. GetPIN, GetMSR, GetSignature etc.

EFT is a PIN Pad protocol used by IBM cash registers. ECR initiates the transaction and the PIN Pad displays run through a number of forms requesting tender type, PIN, and other information as configured in the EFT configuration file on the PIN pad.

To configure the application mode for the terminal:

1. From the Main Menu, select **Setup > Application Mode**. The following screen is displayed:

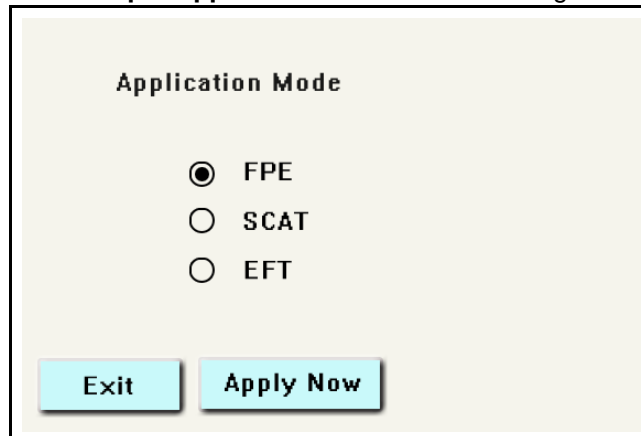


Figure 2-6 *Selecting the Application Mode*

2. Select the application mode you are using.
3. Select **Apply Now** to finalize the setting.

ECR Port

The ECR port allows terminal access through either a Serial line, TCP/IP, or USB connection.

To configure the ECR port:

1. From the Main Menu, select **Setup > ECR Port**.

The following screen is displayed:

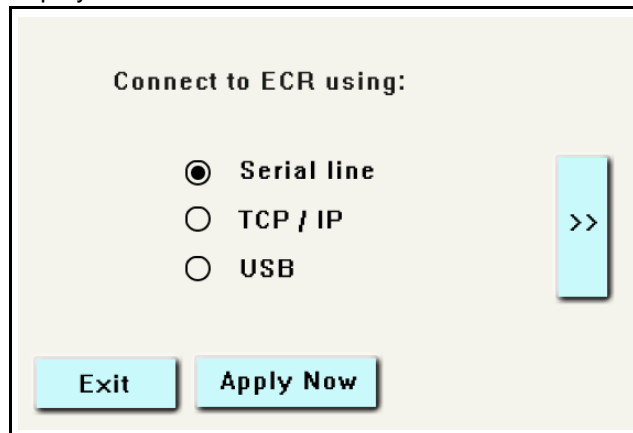


Figure 2-7 Select ECR port

2. Identify your connection type and then determine your next step:
 - To configure a Serial line connection, continue with [Serial Line Connection on page 2-7](#).
 - To configure a TCP/IP connection, continue with [TCP/IP ECR Connection on page 2-9](#).
 - To configure a USB connection, continue with [USB Connection on page 2-9](#).

Serial Line Connection

To configure the serial connection:

1. Select **Serial line** by selecting the radio button to the left of the Connect to ECR screen ([Figure 2-7](#)).
2. Select the **Next Screen** arrow [>>].

The following screen is displayed:

Serial ECR connection

Baud rate:

☐ 9600
☒ 19200
☐ 38400
☐ 57600
☐ 115200

Figure 2-8 *Selecting the Baud Rate for ECR Serial connection*

1. Select the **baud rate** by selecting the appropriate radio button to the left.
2. Select the **Next Screen** arrow [>>].

The following screen is displayed:

Serial ECR connection

Parity:	Data bits:	Stop bits:
<input checked="" type="radio"/> None <input type="radio"/> Odd <input type="radio"/> Even	<input type="radio"/> 6 <input type="radio"/> 7 <input checked="" type="radio"/> 8	<input checked="" type="radio"/> 1 <input type="radio"/> 2

Flow control:

☒ None ☐ Hardware

Figure 2-9 *Selecting the Parity, Data Bits, Stop Bits, and Flow Control for Serial ECR connection*

3. Select the values for Parity, Data bits, Stop bits, and Flow Control by selecting the appropriate radio buttons to the left.
4. Select **Apply Now** to finalize your changes.
5. Check the serial line connection using FPE-Sim. For more information on FPE-Sim, see the *FPE-Sim Quick Reference Guide* included on the FPE32 Developer's Toolkit CD.

TCP/IP ECR Connection

To configure the TCP/IP connection:



IMPORTANT You must know either the IP Address and port used to communicate with the ECR or obtain an IP address using DHCP.

1. From the Connect to ECR screen ([Figure 2-7](#)), select the **TCP/IP Connection** by selecting the radio button to the left.
2. Select the **Next Screen** arrows [**>>**].
3. Enter the IP Address and port used to communicate with the ECR.

TCP / IP ECR connection

IP Address: 255 16 0 1

Port: 5110

1	2	3
4	5	6
7	8	9
CLEAR	0	ENTER

Exit Apply Now <<

Figure 2-10 TCP/IP ECR connection

4. Select **Apply Now** to finalize your selection.
5. Check the TCP/IP connection using FPE-Sim. For more information on FPE-Sim, see the *FPE-Sim Quick Reference Guide* included on the FPE32 Developer's Toolkit CD.
6. Obtain the IP address using DHCP. See [Ethernet Settings on page 2-10](#) for more information on DHCP.

USB Connection

If the USB connection is selected, the USB cable emulates a COM port and will be automatically recognized by your PC. See the FPE32 Developer's Toolkit CD for the RS232 to USB driver.

To configure the USB connection:

1. From the Main Menu, select **Setup > ECR Port > USB**.
2. Select **Apply Now** to finalize your changes.
3. Check the USB connection using FPE-Sim. For more information on FPE-Sim, see the *FPE-Sim Quick Reference Guide* included on the FPE32 Developer's Toolkit CD.

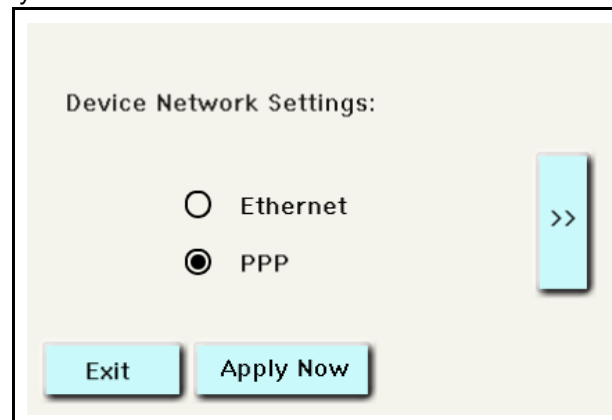
Network

Select this option to configure the Device Network Setting using either Ethernet or PPP.

To configure the device network:

1. From the Main Menu, select **Setup > Network**.

The following screen is displayed:



Device Network Settings:

☐ Ethernet
☒ PPP

>>

Figure 2-11 *Device Network Settings*

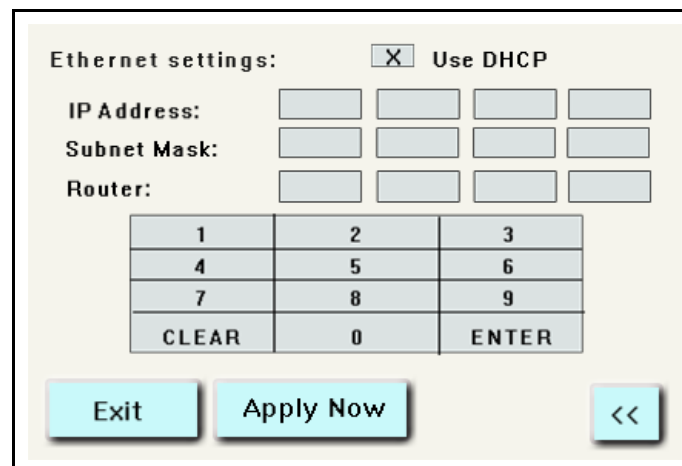
Determine your next step:

- To configure an ethernet connection, continue with [Ethernet Settings on page 2-10](#).
- To configure a PPP connection, continue with [PPP Settings on page 2-11](#).

Ethernet Settings

To configure the Ethernet connection:

1. Select the **Ethernet** option and then select the **Next Screen** arrows [>>]. The following screen is displayed.



Ethernet settings: ☒ Use DHCP

IP Address:

Subnet Mask:

Router:

1	2	3
4	5	6
7	8	9
CLEAR	0	ENTER

<<

Figure 2-12 *Ethernet settings*

2. If you know your IP Address, Subnet Mask and Router information, enter the information. If not, select the DHCP option to allow a DHCP server to automatically assign this information.

3. Select **Apply Now** to finalize your selection.
4. From the Main Menu, select **Util > Restart** to restart the device. If DHCP has been used, allow the device to move to a closed screen on restart.

✓ **NOTE** DHCP information can be found the Util > HW Config menu once an IP address has been assigned to the device.

PPP Settings

If you use Point to Point Protocol for RS232 or USB, you may choose to select a PPP Network setting. The PPP Settings screen is left blank to allow anonymous connections from devices in the Windows setting. This is default Windows behavior.

✓ **NOTE** For RAS Server Setup, contact your Symbol representative.

If you need to configure the PPP settings:

1. Select the **PPP** option.
2. Select **Apply Now** to finalize your selections and to return to the Main Menu.

Contrast

This setting allows the screen's contrast to be adjusted or restored to default.

To set the screen contrast:

1. From the Main Menu, select **Setup > Contrast**. A screen similar to the following is displayed:

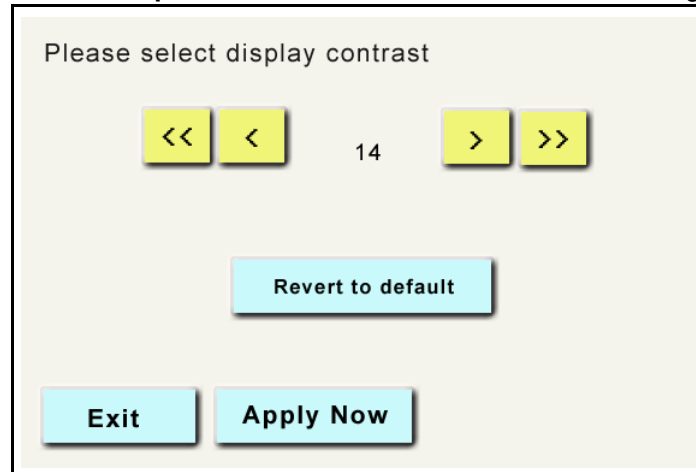


Figure 2-13 Screen contrast settings

2. Use the forward or backward arrows to adjust the contrast, if required.
3. If you need to restore the settings to the default, select **Revert to default**.
4. Select **Apply Now** to apply changes or select **Exit** to return to the Main Menu.

External PIN Pad

Customers are prompted to enter their PIN using an external PIN Pad. The external PIN Pad settings are used to auto-detect and activate an external PIN pad.

✓ **NOTE** To use an external PIN Pad, you must have a Y cable that splits the RS232 cable

To configure the External PIN Pad connection:

1. From the Main Menu, select **Setup > External PIN Pad**. The following screen is displayed:

Connect to PIN Pad:

Serial line 1 (N/A)

☐ Serial line 2 >> **Auto Detect**

Press button "Auto Detect" to detect PINPad.

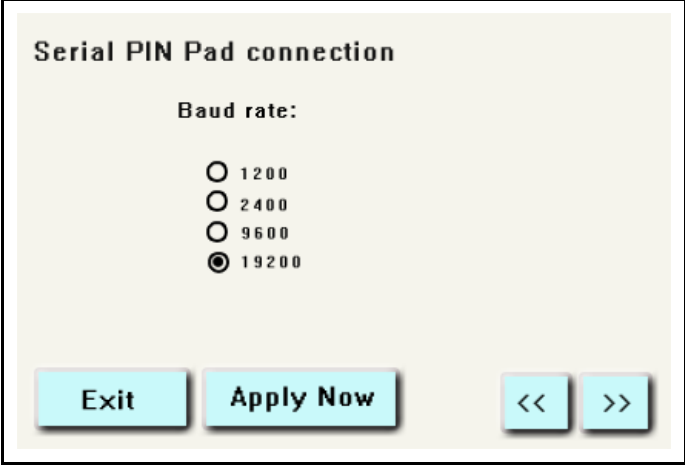
☐ **Use PIN Pad**

Exit **Apply Now**

Figure 2-14 External PIN Pad settings

2. Ensure the External PIN Pad is connected to the terminal using a Y cable.
3. To have the terminal automatically detect the PIN Pad's serial connection:
 - a. Select **Auto Detect**. A "PIN Pad detected" message is displayed.
 - b. Select **Use PIN Pad** checkbox.
 - c. Select **Apply Now** to finalize the settings.

4. To confirm or change the serial PIN Pad connection settings:
 - a. Select the **Next Screen** arrows [>>]. A screen similar to the following is displayed:



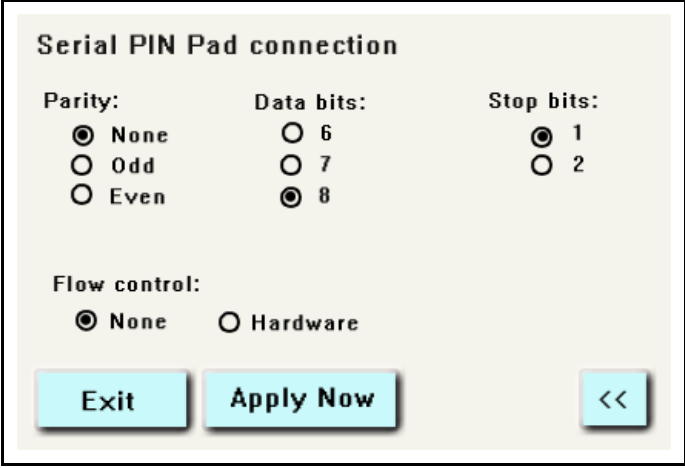
Serial PIN Pad connection

Baud rate:

☐ 1200
☐ 2400
☐ 9600
☒ 19200

Figure 2-15 Baud Rate settings

- b. Select the **Baud rate** by selecting the appropriate radio button to the left.
 - c. Select the **Next Screen** arrows [>>]. A screen similar to the following is displayed:



Serial PIN Pad connection

Parity:	Data bits:	Stop bits:
<input checked="" type="radio"/> None <input type="radio"/> Odd <input type="radio"/> Even	<input type="radio"/> 6 <input type="radio"/> 7 <input checked="" type="radio"/> 8	<input checked="" type="radio"/> 1 <input type="radio"/> 2

Flow control:

☒ None ☐ Hardware

Figure 2-16 Parity, Data Bits, Stop Bits, and Flow Control settings

- d. Select the values for Parity, Data bits, Stop bits, and Flow Control by selecting the appropriate radio buttons to the left.
 - e. Select **Apply Now** to finalize your changes.

HTTP Diagnostics

The HTTP Diagnostic address settings are used to configure the TCP/IP address and port number for diagnostic message transmission. The message is sent in the format of an HTTP request to the specified address and port.

The diagnostic message includes the IP Address and Port number of the requesting terminal.



IMPORTANT If not using the HTTP Diagnostic settings, leave the IP Address and Port number blank.

To configure HTTP diagnostics:

1. From the Main Menu, select **Setup > HTTP diagnostic message**. A screen similar to the following is displayed:

HTTP Diagnostic address

IP Address:

Port:

1	2	3
4	5	6
7	8	9
CLEAR	0	ENTER

Exit **Apply Now**

Figure 2-17 HTTP Diagnostic address settings



IMPORTANT At this time, the diagnostic message only supports the global.cfg file.

2. Using the keypad, enter the IP address and port number for diagnostic message transmission.
3. Select **Apply Now** if you made changes, or select **Exit** to return to the Main Menu.

Screen Saver

The Screen Saver turns the screen to black after the set period of inactivity, extending the life of the screen. The screen returns to its activated mode when any button is pressed or if the screen is touched.

✓ **NOTE** During the first application load, the Screen Saver option is checked automatically.

To set the Screen Saver:

1. From the Main Menu, select **Setup > Screen Saver**. A screen similar to the following is displayed:

Screen Saver

☒ Use Screen saver

Timeout (minutes)

1	2	3
4	5	6
7	8	9
CLEAR	0	ENTER

Exit **Apply Now**

Figure 2-18 Screen saver settings

2. Select the **Use Screen Saver** checkbox or ensure that it is selected if you require the screen saver to be used.
3. If you need to change the number of minutes before the time-out, use the keyboard on the screen to set your desired time-out in minutes between 1 and 30.
 - a. Select **Clear** to clear the time-out in minutes field.
 - b. Select **Enter** to display the number of minutes in the time-out window.

✓ **NOTE** If using FPE, time-out defaults to thirty minutes of inactivity. If using SCAT, time-out defaults to twenty minutes of inactivity.

4. Select **Apply Now** to finalize your selection.

HTMS Connection

Hypercom Terminal Management Services (HTMS) is used to load Optimum terminal applications and packing lists through an ethernet connection. To use HTMS, you must first install the HTMS application, configure Optimum terminals for TCP/IP, and configure the terminal database.

See the *Terminal Management Services User Guide* for more information on HTMS.

To allow a connection to HTMS:

1. From the Main Menu, select **Setup > HTMS Conn.** A screen similar to the following is displayed:

HTMS connection configuration

☐ Allow connection to HTMS

IP Address: . . .

Port:

1	2	3
4	5	6
7	8	9
CLEAR	0	ENTER

Exit **Apply Now**

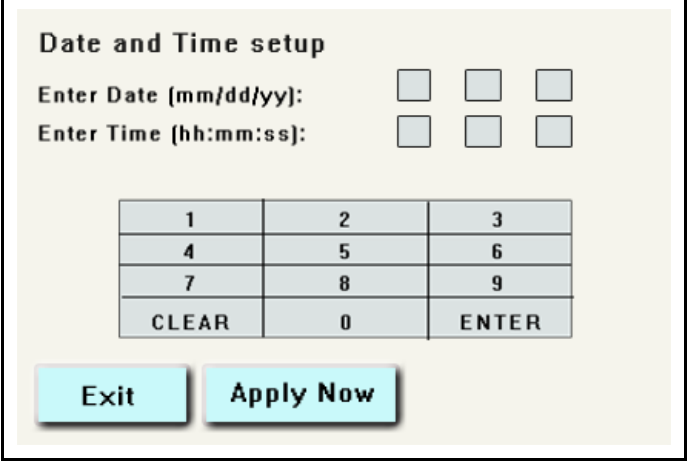
Figure 2-19 HTMS Connection settings

2. Select the **Allow connection to HTMS** checkbox.
3. Using the keypad on the screen, set the IP Address and port used to communicate with HTMS.
4. Select **Apply Now** to finalize your selection.
5. Restart the device. On restart the connection is made to HTMS.

Set Date and Time

To set the date and time:

1. From the Main Menu, select **Setup > Set Date**. A screen similar to the following is displayed:



Date and Time setup

Enter Date (mm/dd/yy):

Enter Time (hh:mm:ss):

1	2	3
4	5	6
7	8	9
CLEAR	0	ENTER

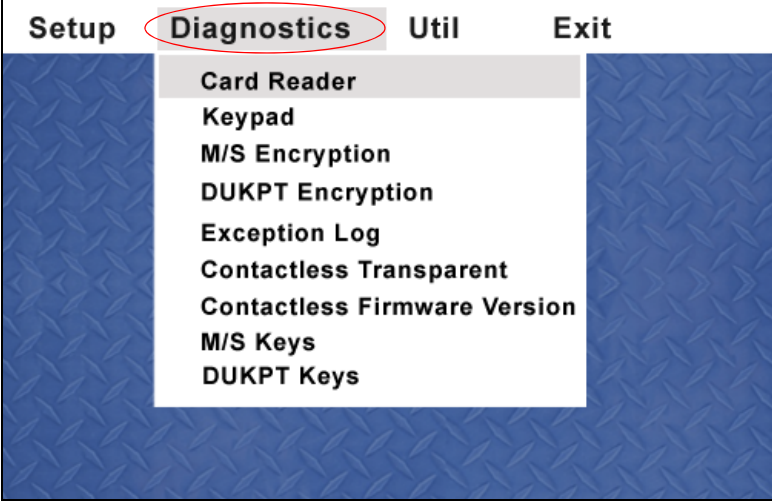
Exit **Apply Now**

Figure 2-20 Set Date and Time settings

2. To set the date, use the keyboard on the screen to set the date in the mm/dd/yy fields.
3. To set the time, use the keyboard on the screen to set the desired time in the hh:mm:ss fields.
4. Select **Apply Now** to finalize your selection.

Diagnostics Menu

The terminal has several diagnostic options built into the terminal that allow you to test, view, or verify data stored in the system.



Setup	Diagnostics	Util	Exit
Card Reader			
Keypad			
M/S Encryption			
DUKPT Encryption			
Exception Log			
Contactless Transparent			
Contactless Firmware Version			
M/S Keys			
DUKPT Keys			

Figure 2-21 Diagnostics options screen

Card Reader (Swipe or Contactless)

This diagnostic tool allows you to view track data from magnetic swipe or contactless cards.

To use the Card Reader tool:

1. From the Main Menu, select **Diagnostics > Card Reader**.

A screen similar to the following is displayed:

Card Reader

Track One:

B4427802641004797~CARD/TEST ^00121010000012345678

Track Two:

4427802641004797+00121010000012345678

Track Three:

Exit Clear All

Figure 2-22 Card Reader settings

2. Swipe the magnetic swipe or contactless card to view the information stored on the tracks.
3. Select **Clear All** to swipe another card.
4. Select **Exit** to return to the Main Menu.

Keypad

This diagnostic tool presents a QWERTY keyboard that allows you to test the screen's acceptance of alpha-numeric inputs.

To use the Keypad tool:

1. From the Main Menu, select **Diagnostics > Keypad**.

The following screen is displayed:

Keypad diagnostics

Selected key:

0	1	2	3	4	5	6	7	8	9	@
Q	W	E	R	T	Y	U	I	O	P	.
A	S	D	F	G	H	J	K	L	Sh	
<-	Z	X	C	V	B	N	M	SPACE		

Exit

Figure 2-23 Keypad settings

2. Select characters on the keyboard to test the screen's acceptance of inputs.
3. Select **Exit** to return to the Main Menu.

M/S Encryption

This diagnostic tool allows the user to enter data and to generate a PIN Block for a Master Session Key.

To use the M/S Encryption tool:

1. From the Main Menu, select **Diagnostics > M/S Encryption**.

The following screen is displayed:

M/S Encryption

Account #:

Master Key Index:

Working Key:

PIN:

1	2	3	A	B
4	5	6	C	D
7	8	9	E	F
CLEAR	0	ENTER		

Exit Encrypt Now Backsp

Figure 2-24 M/S Encryption settings

✓ **NOTE** All fields must be entered before you can continue with Step 6.

2. Enter the Account number.
3. Enter the Master Key.
4. Enter the Working Key (alpha and numeric allowed).

✓ **NOTE** The Working Key field length must be either 16 or 32.

5. Enter the PIN.

6. Select **Encrypt Now** to create a PIN Block. A screen similar to the following is displayed:

M/S Encryption

Account #:

Master Key Index:

Working Key:

PIN:

PIN Block:

Exit **<<**

Figure 2-25 M/S Encryption information

- ✓ **NOTE** If the PIN Block encryption fails, an “Encryption failed” message is displayed on the next screen. Usually this message indicates that the key is not injected.

7. Select **Exit** to return to the Main Menu.

DUKPT Encryption

This diagnostic tool allows the user to enter data and to generate a PIN Block for a DUKPT Key. Multi-DUKPT is also supported.

To use the DUKPT Encryption tool:

1. From the Main Menu, select **Diagnostics > DUKPT Encryption**. A screen similar to the following is displayed:

DUKPT Encryption

Account #:

DUKPT Key Index:

PIN:

1	2	3
4	5	6
7	8	9
CLEAR	0	ENTER

Exit **Encrypt Now**

Figure 2-26 DUKPT Encryption settings

2. Use the keypad to enter the Account number.
3. Enter the DUKPT Key Index number. The default is 12.
4. Enter the PIN.

5. Select **Encrypt Now**.

A screen similar to the following is displayed:

Figure 2-27 DUKPT Encryption information

✓ **NOTE** If the encryption fails, an “Encryption failed” message is displayed on the next screen. Usually this message indicates that the key is not injected.

6. Select **Exit** to return to the Main Menu.

Exception Log

This diagnostic tool shows a list of exceptions on the terminal.

To use the Exception Log:

1. From the Main Menu, select **Diagnostics > Exception Log**.

A screen similar to the following is displayed:

Figure 2-28 Exception Log settings

2. Use the stylus to select an exception and then select **Read** or **Save**.
3. To clear the Exception Log, select **Clear**.
4. Select **Exit** to return to the Main Menu.

Contactless Transparent

This setting allows you to communicate with the contactless reader directly using the Serial 1 port. Data is passed transparently between the port and the contactless reader. This feature can also be used to upgrade firmware or to test the contactless reader using special PC tools.

✓ **NOTE** The Contactless Transparent option is not used in non-contactless terminal operations.

To set the Contactless Transparent interface:

1. From the Main Menu, select **Diagnostics > Contactless Transparent**.

The following screen is displayed:

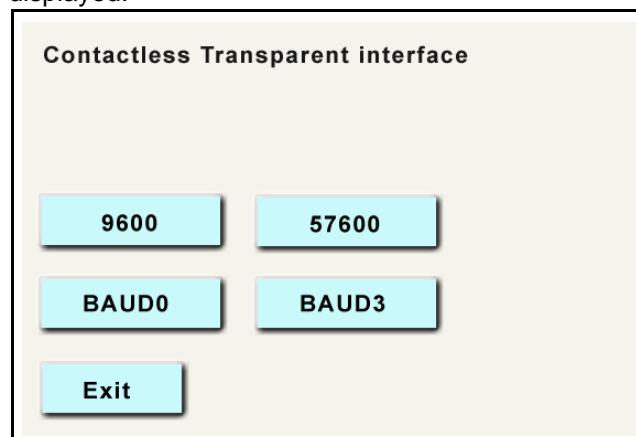


Figure 2-29 Contactless Transparent settings

✓ **NOTE** If you are not using a contactless device, the screen will display "Contactless not found".

2. The Contactless Transparent interface supports four baud rate options. It is suggested that you manually select the baud rate for your terminal. After configuring the baud rate, it can be switched automatically by sending a command to the contactless device.
 - 9600 Baud: Transparent communications are started at 9600 bps if the contactless device has valid firmware.
 - 57600 Baud: Transparent communications are started at 57600 bps if the contactless device has no firmware.
 - BAUD0: The BAUD0 command (9600 mode) is issued to the contactless device and the serial port is switched to 9600 bps.
 - BAUD3: The BAUD3 command (57600 mode) is issued to the contactless device and the serial port is switched to 57600 bps.
3. Select **Exit** to return to the Main Menu.

Contactless Firmware Version

If you are using a contactless device, this diagnostic tool allows you to view the current firmware version.

To view the contactless firmware version:

1. From the Main Menu, select **Diagnostics > Contactless Firmware Version**.

If you are using a contactless device, the version of the installed firmware will be displayed. If you are not using a contactless device, the screen will display "Contactless not found".

The following screen is displayed:



Figure 2-30 Contactless Firmware Version

M/S Keys

This diagnostic tool shows the index of the Master Session key.

To view Master Session index keys:

1. From the Main Menu, select **Diagnostics > M/S Keys**.

A screen similar to the following is displayed:

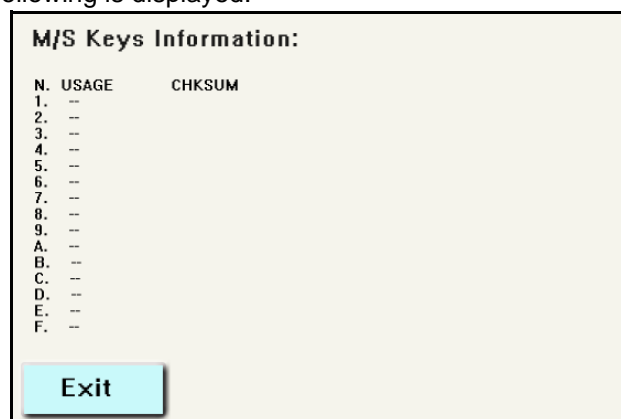


Figure 2-31 M/S Index Keys information

2. Select **Exit** to return to the Main Menu.

DUKPT Keys

This diagnostic tool shows the index of the DUKPT key.

To view DUKPT index keys:

1. From the Main Menu, select **Diagnostics > DUKPT Keys**.

A screen similar to the following is displayed:

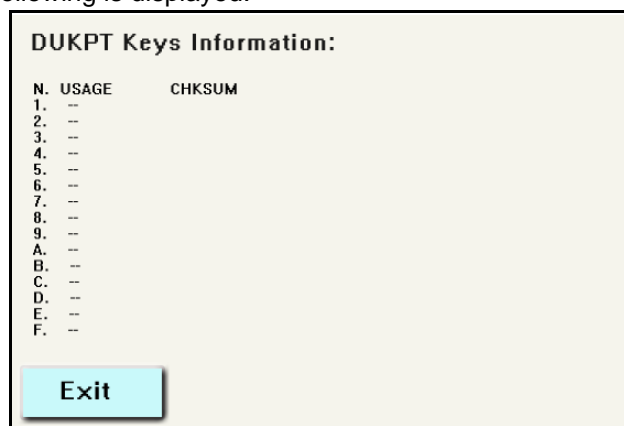


Figure 2-32 DUKPT Index Keys information

2. Select **Exit** to return to the Main Menu.

Util Menu

The terminal has several utility options built into the terminal that allow you to download and view loaded files and calibrate and restart the terminal.

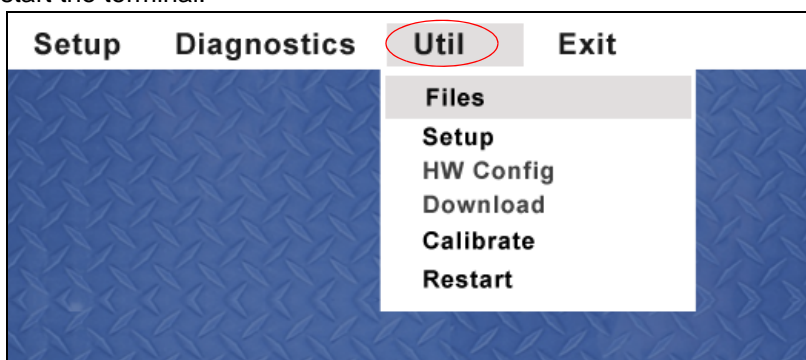


Figure 2-33 Util options screen

Files

From this option you can view all the files loaded into the terminal from a packing list or key download. You can also delete all the files in preparation for a new packing list download.

To view the files loaded into the terminal:

1. From the Main Menu, select **Util > Files**. An example of a screen is shown below:

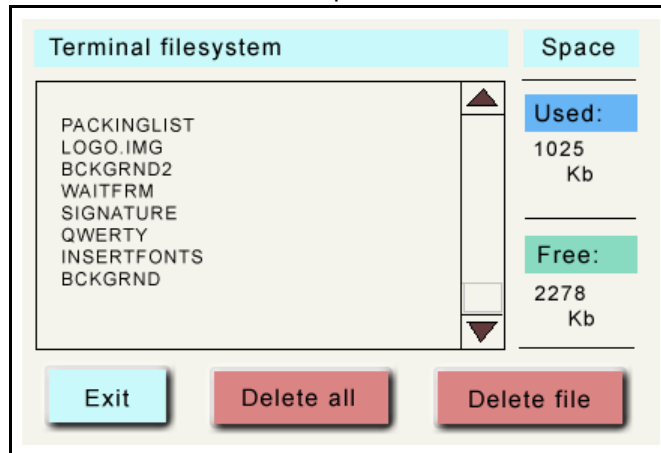


Figure 2-34 Terminal file system screen

From this screen you can view all the files loaded into the terminal from a packing list. Use the scroll bar to move through the list. The amount of space used and the space available is also displayed on the right side of the screen.

2. If you need to delete a file from the list, select the file name and select **Delete file**.
3. If you need to delete all files in preparation for a new packing list download, select **Delete all**.
4. Select **Exit** to return to the Main Menu.

Setup

This option allows you to view the serial number and the MAC Address for the terminal.

To view the serial number or MAC address for the terminal:

1. From the Main Menu, select **Util** > **Setup**.

The following screen is displayed:

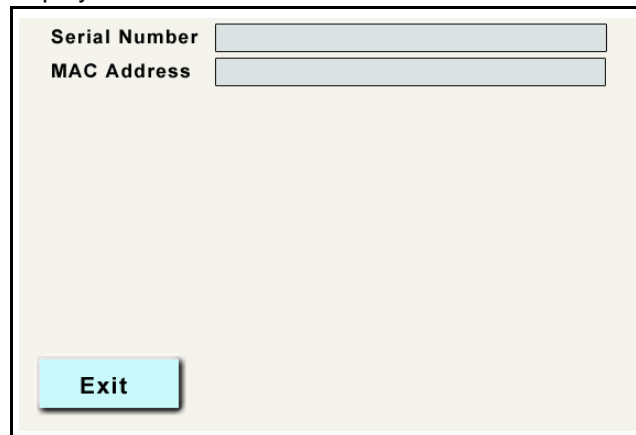
A screenshot of a terminal screen titled 'Serial Number' and 'MAC Address'. It features two input fields, one for the serial number and one for the MAC address. At the bottom left, there is a blue button labeled 'Exit'.

Figure 2-35 Serial number and MAC address screen

2. View the serial number or the MAC address.
3. Select **Exit** to return to the Main Menu.

Hardware Configuration

Use this option to get a quick snapshot of the terminal.

To view the hardware configuration:

1. From the Main Menu, select **Util** > **HW Config**.

The following screen is displayed:

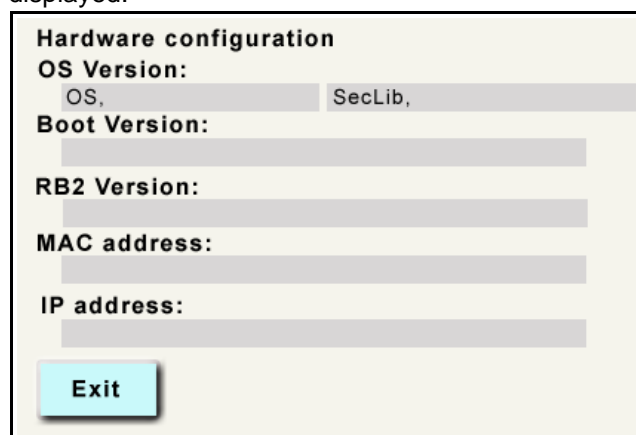
A screenshot of a terminal screen titled 'Hardware configuration'. It displays several fields: 'OS Version:' with 'OS,' and 'SecLib,'; 'Boot Version:'; 'RB2 Version:'; 'MAC address:'; and 'IP address:'. Each field has a corresponding input area. At the bottom left, there is a blue button labeled 'Exit'.

Figure 2-36 Hardware configuration settings

2. Select **Exit** to return to the Main Menu.

Download

Use this option to download keys, applications, and packing lists to the terminal.

To download software to the terminal:

1. From the Main Menu, select **Util > Download**.

The following screen is displayed, listing your download options:

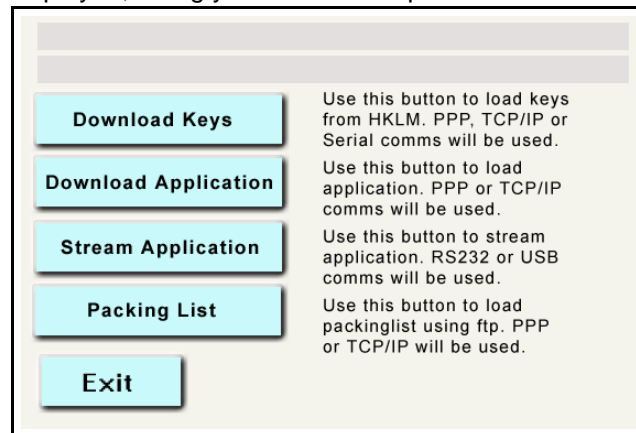


Figure 2-37 Download settings

Downloading Keys

✓ **NOTE** You need an HKLM device to download keys.

To download new keys to the terminal:

1. From the Main Menu, select **Util > Download > Download Keys**.

The following screen is displayed and you are prompted to select the key injection interface:

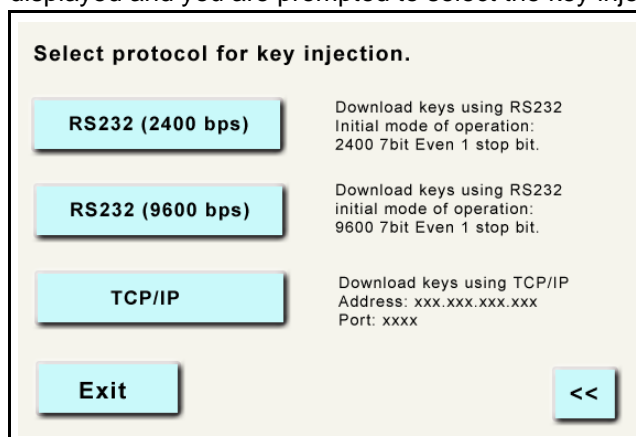


Figure 2-38 Download Keys settings

2. Select on the appropriate option. The terminal attempts to download the keys.
3. Select **Exit** to return to the Main Menu.

Downloading the Application

Determine your next step:

To download using PPP:

1. Ensure the application has been copied to the OS folder under \inetpub\ftproot\ or to the configured location on the server.
2. From the Main Menu on the device, select **Setup > Network**. Ensure the device is set to PPP and select **Apply Now**.
3. Select **Util > Restart** to reboot the device to finalize the PPP selection.
4. From the Main Menu, select **Util > Download > Download Application**.
The device beeps continuously as the application downloads.

OR

To download using an Ethernet connection:

1. The device must have an IP address configured.
To see the assigned IP Address of the device, look under **Util > HW Config**. If you do not see an address assigned, go to **Setup > Network > Ethernet** to either manually insert an address or obtain one using DHCP. Restart the device to apply the changes and check under **Util > HW Config** to verify the IP Address.
2. Ensure the application has been copied to the OS folder under \inetpub\ftproot\ or to the configured location on the server.
3. From the Main Menu, select **Util > Download > Download Application**.
The device beeps continuously as the application downloads.

Streaming the Application

Before you begin, you need to gather the following information:

- Host PC COM port number used to download terminal software
- Host PC baud rate
- The location of the .txt application file

To stream the application:



IMPORTANT The ECR port needs to be set prior to these steps.

1. To set up the terminal, select **Util > Download > Stream Application** from the Main Menu.

The following screen is displayed, listing your download options:

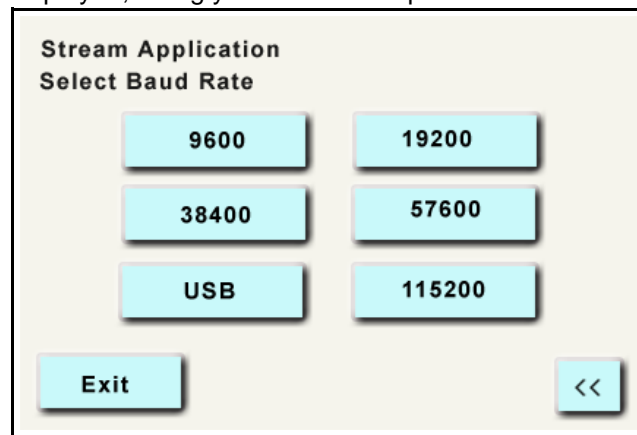


Figure 2-39 Stream application settings

2. Select USB or the appropriate baud rate.

The terminal will then instruct you to begin the download at that baud rate and will wait for the download to begin from the Host PC.

3. Start the WinStream application on your Host PC.

WinStream is installed with the FPE Interface application. After the FPE Interface application is installed on your Host PC, select **Start > Programs > Hypercom > FPE Interface > WinStream**.

The starting WinStream dialog box is displayed:

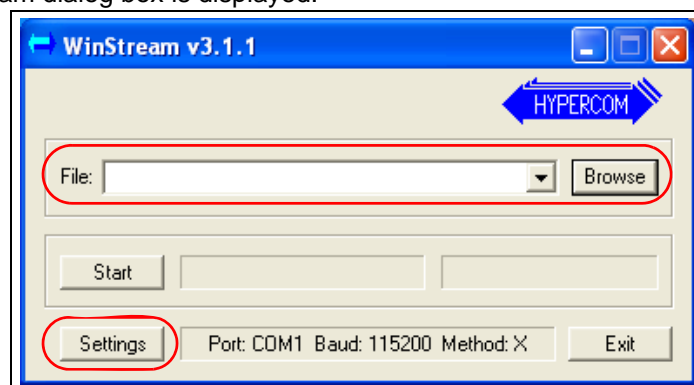


Figure 2-40 WinStream start dialog box

4. Select **Browse** to locate the terminal software.

5. To configure the port and baud rate, select **Settings**. The Settings dialog box is displayed.

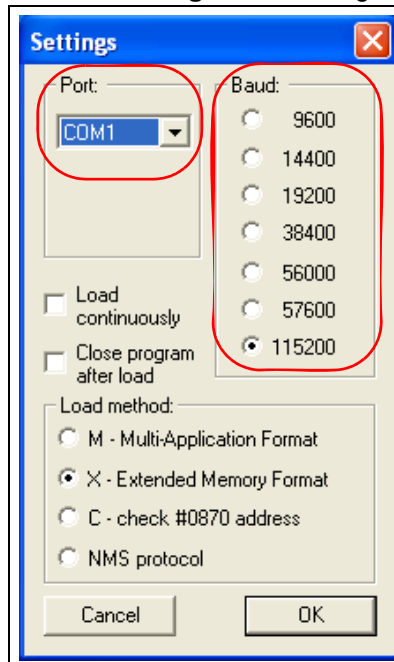


Figure 2-41 WinStream settings dialog box

6. Ensure the COM port is set to the port connected on the Host PC and the correct Baud Rate is set.



IMPORTANT Ensure you select the same baud rate here that you did on the terminal screen.

7. Select **OK**.

The starting WinStream dialog box re-appears.

8. Select **Start**. While the software is downloaded to the terminal, a progress bar displays on both the terminal screen and the WinStream application. The terminal screen also shows the page that was last downloaded.

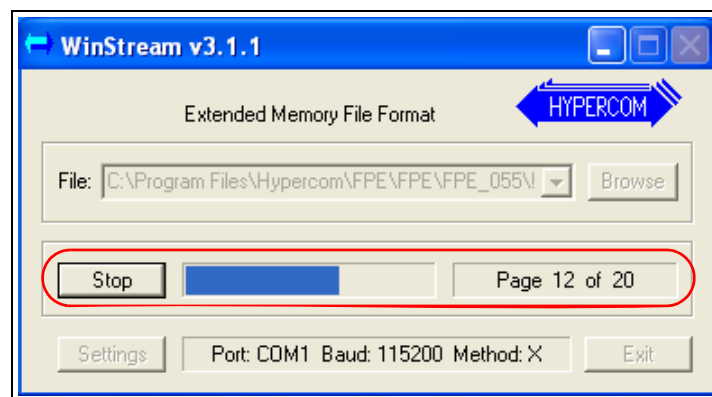


Figure 2-42 WinStream run dialog box

9. When the software finishes downloading, as shown in *Figure 2-43*, select **Exit**.

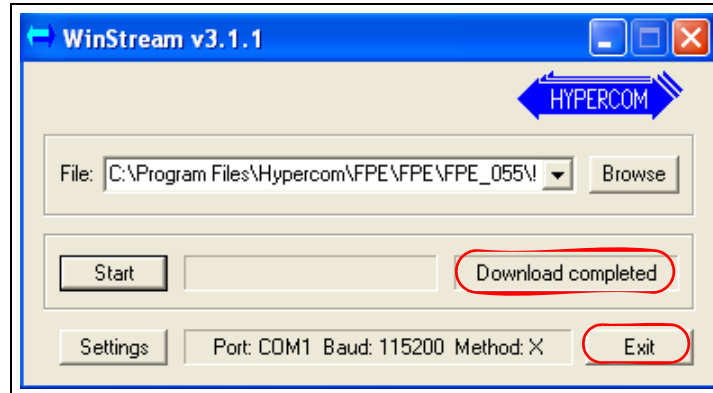


Figure 2-43 WinStream download completed dialog box

The WinStream application closes and the terminal is ready to be configured.

Downloading the Packing List

This option is used to load the packing list using ftp.

Determine your next step:

To download using PPP:

1. Confirm the ECR settings are set to PPP.
2. Copy the `d1` folder for the FormBuilder project to `ftproot`.
3. Create a `packinglist` folder under `ftproot`. The packinglist folder includes a packinglist .txt file. There is one line in the .txt file, `.. \d1`.
4. From the Main Menu on the device, select **Util > Download > Packing List**. The device beeps continuously as the packinglist downloads.
5. Once the download is complete, restart the terminal.

OR

To download using an Ethernet connection:

1. You must specify the IP Address of the device. This can be done either manually or through a DHCP connection.
To see the assigned IP Address of the device, look under **Util > HW Config**. If you do not see an address assigned, go to **Setup > Network** to either manually insert an address or obtain one using DHCP. Restart the device to apply the changes and check under **Util > HW Config** to verify the IP Address.
2. Copy the `d1` folder for the FormBuilder project to `ftproot`.
3. Create a `packinglist` folder under `ftproot`. The packinglist folder includes a packinglist .txt file. There is one line in the .txt file, `.. \d1`.
4. From the Main Menu, select **Util > Download > Packing List**. The device beeps continuously as the packinglist downloads.
5. Once the download is complete, restart the terminal.

Calibrate

The terminal can be calibrated by using the stylus to touch various points on the screen. Calibration ensures the preciseness of customer input fields.

To calibrate the screen:

1. From the Main Menu, select **Util > Calibrate**.
2. Use the stylus to touch the targets shown in each corner and at the center of the screen.
The following screen reports whether or not the calibration passed and then restarts the terminal.

Restart

The terminal can be restarted under this menu option.



IMPORTANT The terminal must be restarted through the Util menu if you are applying new changes that must be loaded at the boot level.

The terminal can also be restarted by pressing in on the small tab in the back right corner, but this restart method should not be used if you are applying boot level changes. (See Figure 1 on page 3 for the location of the reset button.)

To restart the terminal:

1. From the Main Menu, select **Util > Restart**.
The terminal screen goes black and then restarts.

A

application	
downloading	2-28
mode	2-6
software, introduction	1-1
streaming	2-28

B

bold text	iv
bulleted items	iv
bullets	iv

C

calibrating terminal	2-32
card reader	2-18
caution messages	iv
changing password	
using FPE interface	2-4
using FPE-Sim application	2-4
communication interfaces	
ethernet	2-1
RS232	2-1
USB port	2-1
connecting	
serial line	2-7
TCP/IP	2-9
terminal to host PC or network hub	2-2
to HTMS	2-16
USB	2-9
contactless	
firmware version	2-23
transparent	2-22
contrast setting	2-11
conventions	
notational	iv
customer interaction center	2-v

D

date	2-17
diagnostics options	
card reader	2-18
choices from screen	2-17
contactless firmware version	2-23
contactless transparent	2-22
DUKPT encryption	2-20
DUKPT keys	2-24
exception log	2-21
HTTP	2-14
keypad	2-18
M/S encryption	2-19
M/S keys	2-23
downloading	
application using PPP or RS232	2-28
available options	2-27
keys	2-27
packing list	2-31
DUKPT	
encryption	2-20
keys	2-24

E

ECR port	2-7
encryption	
DUKPT	2-20
M/S	2-19
ethernet	
integration	2-1
settings	2-10
exception log	2-21
external PIN pad	2-12

F

files, view loaded on terminal	2-25
FPE32	
overview	1-1

requirements 1-2

H

hardware configuration 2-26
 HTMS 2-16
 HTTP diagnostics 2-14

I

important messagesiv
 italicsiv

K

keypad 2-18
 keys
 downloading 2-27
 DUKPT 2-24
 M/S 2-23

L

log, encryption 2-21

M

M/S
 encryption 2-19
 keys 2-23
 MAC address 2-26
 main menu
 diagnostics options 2-17
 options 2-5
 setup options 2-5
 utilities options 2-24
 mode, application 2-6

N

network settings 2-10
 notational conventionsiv
 note messages 2-iv

P

packing list, downloading 2-31
 password
 changing using FPE interface 2-4
 changing using FPE-Sim application 2-4
 PIN pad setup 2-12
 PPP settings 2-11

R

requirements
 software 1-2
 restarting the terminal 2-32
 RS232 port 2-1

S

screen saver 2-15
 sequential lists iv
 serial line connection 2-7
 serial number 2-26
 service informationv, v
 setup options
 choices from screen 2-5
 contrast 2-11
 date 2-17
 ethernet 2-10
 HTMS connection 2-16
 network 2-10
 PIN pad 2-12
 PPP 2-11
 screen saver 2-15
 time 2-17
 software requirements 1-2
 special icons iv
 streaming the application 2-28

T

TCP/IP connection 2-9
 terminal
 calibrating 2-32
 restarting 2-32
 time 2-17

U

USB
 connection 2-9
 port 2-1
 utilities options
 calibrating 2-32
 choices from screen 2-24
 downloading application 2-28
 downloading keys 2-27
 files 2-25
 hardware configuration (HW Config) 2-26
 options available at download screen 2-27
 packing list 2-31
 restart 2-32
 setup 2-26

streaming the application 2-28

W

warning messagesiv

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